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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte BRIAN A. URBACH

Appeal 2007-4210
Application 10/047,534
Technology Center 3600

Decided: March 24, 2008

Before HUBERT C. LORIN, JENNIFER D. BAHR, and
DAVID B. WALKER, *Administrative Patent Judges*.

BAHR, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

David A. Urbach (Appellant) appeals under 35 U.S.C. § 134 from the Examiner's decision rejecting claims 1-12. We have jurisdiction over this appeal under 35 U.S.C. § 6 (2002).

The Invention

Appellant's claimed invention is directed to a ball joint that supports a first suspension member for movement relative to a second suspension member (Specification 1:4-6). Claim 1 is illustrative of the invention and reads as follows:

> 1. Apparatus comprising:
>
> a first suspension member [12];
>
> a second suspension member [14] having opposite first and second side surfaces and a through hole [24] that extends between the first and second side surfaces, a first frustoconical surface [32] defining a first end of said through hole and a second frustoconical surface [36] defining a second end of said through hole, said first frustoconical surface being angled so that imaginary lines extending from diametrically opposite portions of said first frustoconical surface intersect at a first location within said through hole and between said first and second side surfaces, said second frustoconical surface being angled so that imaginary lines extending from diametrically opposite portions of said second frustoconical surface intersect a second location within said through hole and between said first and second side surfaces, a cylindrical surface [28] interposed between and connecting said first and second frustoconical surfaces, said cylindrical surface defining a central portion of said through hole;
>
> a socket [40] connected with said first suspension member;
>
> a one-piece stud [50] having a first end portion and a second end portion;

said socket supporting said first end portion of said stud in said socket for pivotal movement relative to said socket;

said second end portion of said stud projecting from said socket and completely through said through hole in said second suspension member, said second end portion of said stud having a third frustoconical surface [66] in engagement with said first frustoconical surface of said second suspension member, said third frustoconical surface being angled so that, when in engagement with said first frustoconical surface, imaginary lines extending from diametrically opposite portions of said third frustoconical surface intersect at a third location within said through hole of said second suspension member and between said first and second side surfaces; and

a fastener [nut 90] secured to said second end portion of said stud, said fastener having a fourth frustoconical surface [96] in engagement with said second frustoconical surface of said second suspension member, said fourth frustoconical surface being angled so that, when in engagement with said second frustoconical surface, imaginary lines extending from diametrically opposite portions of said fourth frustoconical surface intersect at a fourth location within said through hole of said second suspension member and between said first and second side surfaces, said second end portion of said stud extending completely through said fastener and said fastener causing said first and third frustoconical surfaces to be pressed together and causing said second and fourth frustoconical surfaces to be pressed together to secure said second suspension member relative to said second end portion of said stud;

said socket and said stud supporting said first suspension member for movement relative to said second suspension member.

The Rejections

The Examiner relies upon the following as evidence of unpatentability:

Sommerer	US 5,062,655	Nov. 5, 1991
Stroh	US 6,257,795 B1	Jul. 10, 2001
Greubel	US 6,416,135 B1	Jul. 9, 2002 (filed Jun. 30, 2000)
Pazdirek	US 6,505,989 B1	Jan. 14, 2003 (filed Feb. 15, 2001)

The following rejections are before us for review:

(1) Claims 1 and 5-12[1] stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

(2) Claims 1-8 and 10-12 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Stroh in view of Sommerer and Greubel.

[1] In the Final Rejection (mailed November 15, 2004), the Examiner lists claims 1-8 as the claims subject to this rejection (Final Rejection 2), but it is apparent from the Examiner's explanation of the rejection that claim 1 and claims 5-12, which depend from claim 1, are subject to this rejection (Final Rejection 2-3). On page 3 of the Answer, the Examiner identifies claims 1-12 as being subject to this rejection, but only provides an explanation as to why claim 1, and implicitly claims 5-12 depending from claim 1, lacks written description support. The limitations of claim 1 identified by the Examiner as lacking written description support are not recited in claims 2-4, and the Examiner does not give any explanation as to why claims 2-4 lack written description support. We thus understand this rejection to apply to claims 1 and 5-12.

(3) Claim 9 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Stroh in view of Sommerer and Greubel, and further in view of Pazdirek.

The Examiner provides reasoning in support of the rejections in the Answer (mailed March 22, 2006). Appellant presents opposing arguments in the Appeal Brief (filed December 27, 2005) and Reply Brief (filed May 3, 2006).

DISCUSSION

Rejection (1)

> 35 U.S.C. § 112, first paragraph, requires a "written description of the invention" which is separate and distinct from the enablement requirement. The purpose of the "written description" requirement is broader than to merely explain how to "make and use"; the applicant must also convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the "written description" inquiry, *whatever is now claimed.*
>
> . . . drawings alone *may* be sufficient to provide the "written description of the invention" required by § 112, first paragraph.

Vas-Cath, Inc. v. Mahurkar, 935 F.2d 1555, 1563-64 (Fed. Cir. 1991).

The question of whether a modification is an obvious variant of that which is originally disclosed is irrelevant insofar as the written description requirement is concerned. *See, e.g., Lockwood v. American Airlines Inc.*, 107 F.3d 1565, 1571-72 (Fed. Cir. 1997).

The Examiner contends that the application as originally filed does not provide support for the limitations that the frustoconical surfaces are

angled so that imaginary lines extending from diametrically opposite portions of said frustoconical surface intersect at a location within said through hole and between said first and second side surfaces, as recited in claim 1 (Answer 4). Appellant argues that support for these limitations is found in the drawings, particularly Figure 2, of the application as originally filed (Appeal Br. 12).

Citing *Hockerson-Halbertstadt, Inc. v. Avia Group Int'l*, 222 F.3d 951, 956 (Fed. Cir. 2000), the Examiner contends that since there is no indication in the original disclosure that the drawing figures are drawn to scale, Appellant cannot rely on the drawings to show particular sizes if the specification is completely silent on the issue (Answer 13-14). Appellant, on the other hand, argues that *Manual of Patent Examining Procedure* § 2125, in which *Hockerson-Halbertstadt* is cited, deals with reliance on drawings of a prior art patent where the drawings were in conflict with the written description and does not address the issue of written description support (Appeal Br. 11). Be that as it may, *Hockerson-Halbertstadt*, holding that where a patent was devoid of any indication that the drawings were to scale, the drawings could not be relied upon to construe whether the term "central longitudinal groove" required that the width of the groove be less than the combined width of the fins, unequivocally states that "it is well established that patent drawings do not define the precise proportions of the elements and may not be relied on to show particular sizes if the specification is completely silent on the issue." *Id.* at 956. "Ordinarily drawings which accompany an application for a patent are merely illustrative of the principles embodied in the alleged invention claimed therein and do not define the precise proportions of elements relied upon to

endow the claims with patentability." *In re Olson*, 212 F.2d 590, 592 (CCPA 1954).

Appellant's Specification is silent as to whether imaginary lines extending from diametrically opposite portions of the frustoconical surfaces would intersect within the through hole. The Specification merely states, on pages 4 and 5, that the first chamfer 32 and second chamfer 36 extend at a 45 degree angle to the axis 26 and could be different in different embodiments. The description is similar with respect to the other frustoconical surfaces 66, 96 (Specification 6 and 7-8). Appellant cannot rely on the drawings to support these limitations, as there is no indication in the application as originally filed that they have been drawn to scale and that the thickness of the second suspension member 14, for example, has not been exaggerated to facilitate illustration of the invention. Appellant submits, in the Evidence Appendix to the Appeal Brief, a mechanical drawing to show that Figures 1 and 2 of the original application are drawn to scale (Appeal Br. 13), but that drawing is of no relevance, as it does not form part of the original disclosure.

In light of the above, Appellant's arguments fail to persuade us that the Examiner erred in determining that the present application, as originally filed, does not convey with reasonable clarity to those skilled in the art that, as of the filing date of the application, Appellant was in possession of the invention claimed in independent claim 1, and hence claims 5-12 dependent on claim 1. The rejection is sustained.

Rejection (2)

Claim 1

There does not appear to be any dispute that Stroh teaches all of the limitations of claim 1, with the exception of frustoconical surfaces. Rather, Appellant argues that "the record in this case is totally devoid of a teaching or suggestion of frustoconical surfaces having the features recited in claim 1" (Appeal Br. 15). Further, Appellant argues that there is no teaching or suggestion in the applied references to modify the embodiment of Stroh's Figure 3 to include frustoconical surfaces (Appeal Br. 18).

The surfaces of recesses 13 and 14 of Stroh's tie rod linkage 2 corresponding to the first and second frustoconical surfaces of Appellant's claim 1 are round or spherical (fig. 3). According to Stroh, when the connection is in place, shoulder portion 12 of stud 6 sits in the recess 13, so as to precisely establish the relative positions of the tie rod linkage 2 (second suspension member) and steering knuckle arm 1 (first suspension member) and provide a tight and secure fit between the mounting stud and the tie rod linkage (col. 2, ll. 51-56). Likewise, shoulder portion 15 of nut 11 (fastener) fits snugly in recess 14 (col. 2, ll. 56-59).

Sommerer shows a similar ball joint arrangement supporting a first element (upper control arm 4) for movement relative to a second element (wheel carrier 2), wherein the ring 10 of wheel carrier 2 has tapered recesses for receiving the tapered neck 11 of the ball joint (stud) 8 (fig. 2). Sommerer thus evidences that tapered recesses for receipt of a ball joint stud were known in the art at the time of Appellant's invention.

Greubel teaches the interchangeability of cone seating mounting nuts having a frustoconical surface with nuts having a spherical radius (col. 3, l.

61-65). Greubel also teaches that the nut and the hole, or recess, into which the nut is received, should have matching configurations; for example, if the nut has a spherical radius, the disc hole will likewise have a spherical radius (col. 4, ll. 2-4).

Moreover, Appellant admits that "[o]ne of ordinary skill in the art will recognize frustoconical surfaces as being superior to spherical surfaces for aligning adjoining parts" (Appeal Br. 19). An appellant's admissions may be considered "prior art" for any purpose, including use as evidence of obviousness. *In re Nomiya*, 509 F.2d 566, 570-71 (CCPA 1975).

In light of the evidence that (1) both round, or spherical, and frustoconical seating recesses were known in the art at the time of Appellant's invention for seating a ball stud and a fastening nut in a suspension member in a ball joint arrangement (Stroh and Sommerer), (2) frustoconical and spherical seating recesses, with corresponding mounting nut configurations, were recognized as interchangeable at the time of Appellant's invention (Greubel), and (3) the recognition in the art that frustoconical surfaces are superior to spherical surfaces for aligning adjoining parts, it would have been obvious to a person of ordinary skill in the art to modify the surfaces of Stroh's recesses 13 and 14 to be frustoconical, rather than spherical, to achieve a superior configuration for aligning the ball stud 6 and nut 11 with the tie rod linkage 2. It would further have been obvious, both as a matter of ordinary creativity[2] and common sense, to provide configurations on the ball stud 6 and nut 11 of

[2] "A person of ordinary skill is also a person of ordinary creativity, not an automaton." *KSR Int'l. Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1742, 82 USPQ2d 1385, 1397 (2007).

Stroh matching those of the recesses 13 and 14, especially in view of the teaching by Greubel to match the configuration of the mounting nut to the seating recess.

Appellant may be correct that none of applied references explicitly shows a seating recess having a frustoconical surface angled so that imaginary lines extending from diametrically opposite portions of said frustoconical surface intersect at a location within said through hole and between said first and second side surfaces, as recited in claim 1. Nevertheless, while there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness, "the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *KSR*, 127 S.Ct. at 1741.

> When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. In that instance the fact that a combination was obvious to try might show that it was obvious under § 103.

Id. at 1742.

In this instance, there are a finite number of identified, predictable possibilities with regard to the angles of the frustoconical recesses and matching ball stud and nut surfaces relative to the length of the through hole in Stroh's tie rod linkage. These surfaces can be either so steep relative to

the length of the through-hole that imaginary lines extending from diametrically opposite portions thereof do not intersect within the hole or so shallow that such imaginary lines intersect within the hole. Under these circumstances, the selection of either of these options is more likely the product of ordinary skill and common sense than of innovation. Moreover, Appellants do not allege, much less show, that frustoconical surfaces angled as recited in claim 1 yield unexpected results compared with frustoconical surfaces angled so that imaginary lines extending from diametrically opposite portions thereof intersect outside the through hole. To the contrary, as discussed above, Appellant's Specification, at pages 4, 5, 6, and 7-8, states that the first and second chamfers 32, 36 and frustoconical surfaces 66, 96 are illustrated at a 45 degree angle to axis 26 but could be different in different embodiments. Accordingly, frustoconical surfaces on recesses 13, 14 and on the ball stud 6 and nut 11 angled as recited in claim 1 would have been obvious.

For the foregoing reasons, Appellant's arguments do not persuade us of reversible error in the Examiner's rejection of claim 1 as unpatentable over Stroh in view of Sommerer and Greubel. The rejection is sustained.

Claim 5

Appellant argues that the record lacks a stud having a threaded end portion that extends to a shoulder forming a frustoconical surface of the stud (Appeal Br. 22-23). Referring to the annotated Figure 3 of Stroh included in the Answer, at page 21, the Examiner points out where Stroh discloses this

feature (Answer 17).[3] Appellant does not point out any error in the Examiner's finding, and thus fails to persuade us the Examiner erred in rejecting claim 5 as unpatentable over Stroh in view of Sommerer and Greubel. The rejection is sustained.

Claim 6

Appellant argues that "[t]he record in this case is devoid of a teaching or suggestion of a stud having a threaded end portion that extends to a shoulder forming an end of a frustoconical surface of the stud" (Appeal Br. 23-24). Claim 6 does not recite "a stud having a threaded end portion that extends to a shoulder forming an end of a frustoconical surface of the stud," as Appellant's argument implies. It is well established that limitations not appearing in the claims cannot be relied upon for patentability. *In re Self*, 671 F.2d 1344, 1348 (CCPA 1982). In any event, referring to the annotated Figure 3 of Stroh included in the Answer, at page 21, the Examiner points out where Stroh discloses this feature (Answer 17). Appellant does not point out any error in the Examiner's finding. Appellant's argument thus cannot demonstrate reversible error in the Examiner's rejection of claim 6. The rejection of claim 6 as unpatentable over Stroh in view of Sommerer and Greubel is sustained.

Claim 7

Appellant argues that the record is devoid of a teaching or suggestion of the frustoconical surface of the stud and a frustoconical surface of the fastener extending at the same angle relative to the central axis of the stud

[3] We note that claim 5 merely requires that the threaded portion, not the threads themselves, extend to a shoulder forming an end of the frustoconical surface.

(Appeal Br. 24). Furthermore, according to Appellant, combining the teachings of the applied references to meet this feature "only seems plausible using hindsight after having the benefit of [Appellant's] disclosure." *Id.* We do not agree with Appellant.

First, to have the third frustoconical surface (that of the stud) extend at the same angle as that of the first frustoconical surface is a simple matter of common sense, since the third frustoconical surface engages the first frustoconical surface. Moreover, as discussed above, Greubel teaches having the recess contour correspond to that of the nut, that is, the structure that engages the recess (col. 4, ll. 2-4). To have the fourth frustoconical surface extend at the same angle as that of the second frustoconical surface, with which it engages, is likewise a simple matter of common sense. Having the fourth frustoconical surface (that of the fastener or nut) extending at the same angle as the third frustoconical surface appears to be a predictable variation of Stroh's arrangement, as there are a finite number, namely, three, of predictable possibilities of the relationship between these two frustoconical surfaces. The fourth frustoconical surface must be at the same angle, a steeper angle, or a shallower angle as compared to the third frustoconical surface. Accordingly, the selection of any of these possibilities would have been obvious, especially in the absence of any evidence that equal angles yields any unexpected results. In fact, to provide the third and fourth frustoconical surfaces at equal angles would appear to be the most readily envisaged option, in the absence of any reason to make them different.

Appellant's argument does not persuade us of reversible error in the Examiner's rejection of claim 7 as unpatentable over Stroh in view of Sommerer and Greubel. The rejection is sustained.

Claims 8 and 10-12

Although the Appeal Brief purports to present separate arguments for each of these claims under separate sub-headings (Appeal Br. 25-27), this portion of the Appeal Brief merely points out the limitations of clams 8 and 10-12 and baldly argues that none of the applied references teaches or suggests the features of these claims, without specifically pointing out the deficiencies in the Examiner's articulated position (Answer 8-9 and 18) with regard to the limitations of these claims. "A statement which merely points out what a claim recites will not be considered an argument for the separate patentability of the claims." 37 C.F.R. § 41.37(c)(1)(vii).

Appellant fails to persuade us of reversible error in the Examiner's rejection of these claims as unpatentable over Stroh in view of Sommerer and Greubel. The rejection of claims 8 and 10-12 is sustained.

Claim 2

Appellant argues that claim 2 patentably defines over the combination of Stroh, Sommerer and Greubel "for reasons similar to those set forth above with regard to claim 1" (Appeal Br. 27). The arguments advanced by Appellant with regard to claim 1 are unpersuasive of error in the Examiner's rejection of claim 2 for the reasons discussed above with regard to claim 1, and for the additional reason that the limitations of claim 1 with regard to the frustoconical surfaces being angled so that imaginary lines extending from diametrically opposite portions of said frustoconical surfaces intersect at

locations within said through hole and between said first and second side surfaces are not recited in claim 2.

Appellant additionally argues that the record lacks a teaching or suggestion of a frustoconical surface of the stud and two frustoconical surfaces of a suspension member extending at the same angle relative to the central axis of the stud (Appeal Br. 28). This argument is unpersuasive for the same reasons discussed above with regard to claim 7.

The rejection of claim 2 as unpatentable over Stroh in view of Sommerer and Greubel is sustained.

Claim 3

Appellant argues that the record lacks a teaching or suggestion of a frustoconical surface of the fastener extending at the same angle relative to the axis of the stud as the frustoconical surface of the stud and two frustoconical surfaces of the suspension member (Appeal Br. 28). This argument is unpersuasive for the reasons discussed above with regard to claim 7. The rejection of claim 3 as unpatentable over Stroh in view of Sommerer and Greubel is sustained.

Claim 4

Appellant argues that none of the applied references teaches or suggests the third frustoconical surface extending at a 45 degree angle to the axis (Appeal Br. 29). Where the difference between the claimed invention and the prior art is some range or other variable within the claims, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range. *In re Woodruff*, 919 F.2d 1575, 1578 (Fed. Cir. 1990). Moreover, even when an applicant's modification results in great

improvement and utility over the prior art, it may still not be patentable if the modification was within the capabilities of one skilled in the art, unless the claimed ranges "produce a new and unexpected result which is different in kind and not merely in degree from the results of the prior art." *In re Huang*, 100 F.3d 135, 139 (Fed. Cir. 1996). Appellant has not alleged, much less shown, that the particular angle of 45 degrees achieves unexpected results relative to the angles taught in the prior art. To the contrary, as discussed above, Appellant's Specification, at pages 4, 5, 6, and 7-8, states that the first and second chamfers 32, 36 and frustoconical surfaces 66, 96 are illustrated at a 45 degree angle to axis 26 but could be different in different embodiments.

In light of the above, Appellant's argument does not persuade us of reversible error in the Examiner's rejection of claim 4 as unpatentable over Stroh in view of Sommerer and Greubel. The rejection is sustained.

Rejection (3)

In rejecting claim 9 as unpatentable over Stroh in view of Sommerer and Greubel, and further in view of Pazdirek, the Examiner finds that Stroh fails to disclose the terminal end of the stud having a hexagonal configuration (Answer 10). The Examiner finds that Pazdirek teaches a terminal end of a ball stud having a hexagonal configuration (fig. 1). *Id.* The Examiner determines that it would have been obvious to one of ordinary skill in the art at the time of Appellant's invention to provide the terminal end of Stroh's stud 6 with a hexagonal configuration to prevent the stud from slipping (i.e., rotating) in the through hole when the fastener is fastened to the stud. *Id.*

Appellant argues that claim 9 patentably defines over the combination of Stroh, Sommerer, Greubel, and Pazdirek "for reasons similar to those set forth above with regard to claim 1" (Appeal Br. 29). The arguments advanced by Appellant with regard to claim 1 are unpersuasive of error in the Examiner's rejection of claim 9 for the reasons discussed above with regard to claim 1.

In addition, Appellant merely repeats the limitations of claim 9 and argues that none of the applied references teaches or suggests the features of claim 9 (Appeal Br. 29-30), without pointing out the deficiency in the Examiner's findings and position. Appellant's argument thus fails to demonstrate error in the Examiner's rejection of claim 9 as unpatentable over Stroh in view of Sommerer and Greubel, and further in view of Pazdirek. The rejection is sustained.

CONCLUSION

All of the Examiner's rejections are sustained. The decision of the Examiner to reject claims 1-12 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2007).

AFFIRMED

vsh

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